In the matter of	**)**	
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Amendment of Part 97 of the Commission's Rules	**)**	
Governing the Amateur Radio Service Rules	**)**	**RM-11828**
Concerning Permitted Emissions and Operating	**)**	
Privileges for Technician Class Licensees	**)**	

To: The Chief, Wireless Telecommunications Bureau, Federal Communications Commission

Subject: Comments on RM-11828

I, Bruce Blain, file these comments on April 11, 1019, in the FCC's Notice of Proposed Rulemaking, RM-11828.

Background - I have been an amateur radio operator for over 50 years, hold an Amateur Extra license (K1BG), and am 65 years old. I have been a licensed radio amateur since I was 14 years old (WN1KBG, 1968) and have been keenly aware of the changes which have taken place in the Amateur Radio Service during this time. I have been an ARRL member for 50 years, and am an ARRL VE (volunteer examiner). In addition, and as a direct result of my interest in Amateur Radio, I earned a Bachelor of Science in Electrical Engineering (Northeastern University, Boston Massachusetts, 1976) and have worked in both the computer industry and the commercial microwave radio industry. During the time I have been an amateur, I have both taught classes in amateur radio and have helped a number of people earn amateur radio licenses. In the last 9 months, I have assisted 15 young people (between the ages of 9 and 18) in obtaining a technician class amateur license, learning Morse code, or both.

First, I want to state that I am in favor of this proposal, for the following reason:

It supports the basis and purpose of amateur radio as defined in FCC 47CFR Part 97.1.

Part 97.1 defines the basis and purpose of amateur radio and states the following:

§97.1 Basis and purpose.
The rules and regulations in this part are designed to provide an amateur radio service having a fundamental purpose as expressed in the following principles:
(a) Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications.
(b) Continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art.
(c) Encouragement and improvement of the amateur service through rules which provide for advancing skills in both the communication and technical phases of the art.
(d) Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.
(e) Continuation and extension of the amateur's unique ability to enhance international goodwill.

Passing RM-11828, with regards to paragraph (a), is important.

Using the recent hurricane Maria in Puerto Rico as an example, technician class licensees provide an important and necessary public service in times of emergency. A look on April 5th, 2019 at the FCC ULS website (https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAmateur.jsp) shows the following statistics for active amateur licenses in Puerto Rico:

Amateur Extra – 586 Licenses
Advanced – 248 Licenses
General – 1042 Licenses
Technician – 2704 Licenses
Novice - 254 Licenses

Out of 4834 licensed hams, the technician class operators account for 2704 of them, or roughly 56%, which I believe is a typical percentage nationally.

Emergency communications are conducted on both HF and VHF/UHF frequencies. On VHF/UHF, communications is conducted either by limited line-of-site communications or by use of repeaters for extended range. This extended range is limited by the line-of-site capabilities of the repeater. These repeaters may be linked using public infrastructure, i.e., the internet or leased telephone facilities. Hurricane Maria showed us that when the public infrastructure is destroyed, VHF/UHF emergency communications is of limited value, particularly in rural areas.

Emergency communications over HF utilize long distance communications via the ionosphere, or short distance communications via NVIS (Near Vertical Incidence Skywave) utilizing lower frequency HF spectrum (typically 80 and/or 40 meters), is essential in an emergency where infrastructure is destroyed. With current and predicted propagation over the next few years, 10 meter propagation via the ionosphere is not expected to be of practical use and should not be considered as part of this discussion (in essence, 10 meter propagation has the same characteristics as VHF propagation, short distance line of site).

In WT Docket No. 05-235, paragraph 16, Page 8 (https://ecfsapi.fcc.gov/file/6518721823.pdf) the FCC states the following: "Another fundamental purpose underlying our Part 97 rules is to enhance the value of the amateur service to the public, particularly with respect to providing emergency communications. Based on the record before us, we are not persuaded to depart from the pending proposal by the argument that telegraphy proficiency should be required because the amateur radio stations may provide or assist with emergency communications. The Commission previously addressed the essence of this argument, and concluded that most emergency communications today is performed using voice, data, or video techniques, and that most amateur radio operators who choose to provide emergency communications do so using voice or digital modes of communications because information can be exchanged must faster using these modes rather than telegraphy. As a result, we find that requiring an individual to demonstrate Morse code proficiency as a license qualification requirement is unrelated to the licensees' ability to provide or assist with emergency communications."

Technician class licensees pass a test giving them Morse only HF privileges, with voice, data, and video capabilities at VHF/UHF ONLY. They constitute a majority of today's licensed operators. Even though the FCC has eliminated all Morse code requirements and has clearly stated why there is no need for Morse capabilities for emergency communications, the ability of technician operators to provide vital

emergency communications when infrastructure is out or in rural areas where repeaters do not exist is limited to Morse only. I believe that extending limited HF voice and data privileges will enhance the technician class licensee's ability to communications during emergencies.

Paragraph (c) Encouragement and improvement of the amateur service through rules which provide for advancing skills in both the communication and technical phases of the art.

The current technician class license offers little in the way of encouragement to a new licensee. When the technician class of license replaced the novice as the entry level license, VHF/UHF had much to offer. For amateurs, FM was the "personal communications" technology of choice. Capabilities, such as the "auto patch" and FM repeaters were "state of the art". I remember a demonstration where a pizza was ordered over a phone patch! Repeaters were places where new licensees could be encouraged and assisted in improving both their communications and technical skills.

Today, the smart phone has replace VHF/UHF FM as the personal communications technology of choice. Many hams (including myself) who at one time carried VHF/UHF FM transceivers now carry cell phones. Yes, I order my pizza on a cell phone! Young people in particular find VHF/UHF FM to be much less exciting or interesting than a smart phone. In many areas of the country, it's hard to find activity on local FM repeaters. Few people are available to help them on these repeaters. New licensees have been told that after passing the technician class license, if they really want to enjoy amateur radio, they have to pass the general class license. After studying and passing the technician test, they find this disappointing.

The entry class license should give a new amateur enough privileges to find out what amateur radio is about, explore its capabilities, and provide proper incentives to move on to a higher class license. This should include limited HF phone and data capabilities. The current technician class privileges fail in this. The FCC ULS shows that a large number of technician class licensees simply do not renew their license once their 10 year license period expires. Sites such as QRZ.com, which shows the number of times a licensee has been searched by callsign, shows that after a ten year period expiring callsigns have had relatively few searches. Searches are usually, but not exclusively, made during or after on-the-air contact with operators. Few searches is indicative of low on-the-air activity.

Paragraph (e) - Continuation and extension of the amateur's unique ability to enhance international goodwill.

Based on current propagation forecasts, the limited long distance communications offered by 10 meter propagation offers the technician class licensee little opportunity to explore or enhance the international good will aspect of the hobby. In the past, the novice license offered great opportunities for international goodwill. When the novice was eliminated and the technician became the entry level license, Morse was still required for a technician class license operating on HF frequencies. When the FCC dropped the Morse requirement, you acknowledged the reasons why Morse should no longer be required, but the reasons were never applied to the entry level license. This proposal will correct this omission.

For these reasons, and many more, I support passage of RM-11828.

RM-11828, however, fails to recognize the root causes of the problems facing the technician class license (as an entry level license) with regards to it attracting young people to the hobby.

The technician class license, and the novice class license, were created in 1951 as part of the FCC's NPRM 9295 released in 1949. The original intent of the technician class license was to be an experimenter's license. As such, it makes for a less than ideal "entry level license". Because I cannot find any reference to NPRM9295 on the FCC website, I am including a copy of the NPRM, as published in QST Magazine, as Addendum "A".

The problem for the technician class license as an entry level license is that in some areas it offers too many privileges, and in many cases, not enough privileges. For instance: The idea that a newly minted entry level technician class licensee can purchase a 50 MHz transceiver, a 1500 Watt amplifier, and experiment with dipole antennas, having no practical experience, in my opinion, frightening. This is questionable from purely a safety point of view. Even the current HF power limit of 200 Watts should be something more reasonable for an entry level license – say 50 Watts. The problem with the technician license is that it is not relevant to the needs of an entry class licensee.

Historically, the entry level license has gone through a number of changes over the years. Before 1912, there were no amateur licenses. There is ample evidence to show that from before the first amateur legislation in 1912 (http://earlyradiohistory.us/1912reg.htm) and the beginning of the First World War in 1917, amateur radio was considered a "youth hobby". The test in 1914 was "exceedingly simple". Requirements in 1914 were as follows: "*Amateur first grade*.--The applicant must have a sufficient knowledge of the adjustment and operation of the apparatus which he wishes to operate and of the regulations of the International Convention and acts of Congress in so far as they relate to interference with other radio communication and impose certain duties on all grades of operators. The applicant must be able to transmit and receive in Continental Morse at a speed sufficient to enable him to recognize distress calls or the official "keep-out" signals. A speed of at least five words per minute (five letters to the word) must be attained." The Amateur Second grade was even easier. See: http://earlyradiohistory.us/1914reg.htm

By the mid 1930's, the requirements were a 13 word per minute code test and a ten question written exam requiring the drawing of schematic diagrams of then current radio transmitters and receivers. According to a 1936 "It Seems to Us" editorial in QST, there were a handful of amateurs under 15 years of age in the United States. See Addendum "B".

FCC NPRM 9295, in 1949, states the following regarding the novice license proposal:

"Paragraph 7. (c) Creation of initial interest on the part of the novice, particularly youth, through the establishment of a short term, non-renewable beginner's license of comparatively easy attainment."

The resulting R&O 9295 had a novice license with a one year non-renewable term, a 5 word per minute Morse requirement, a 20 question test that was very easy, a 75 Watt input power limitation, and a distinctive callsign.

The new novice license had a test that resembled the test in 1915! Again, while I cannot find the test questions on the FCC website, Addendum "C" is an article from QST discussing the test and providing the FCC questions and ARRL answers. To show how easy it was, attached is a scan of the novice study

guide from a 1951 issue of "The Radio Amateur's License Manual" published by the ARRL, Addendum "D".

This simple entry level test resulted in a tremendous boom to amateur radio (particularly regarding youth) and is a reflection of the forward thinking leadership provided by the FCC at that time. Anyone licensed before 1976 (and to a greater extent, before 1968) remembers how easy it was to get a novice license, how effective the license was, and how motivated not just young people were to advance to a higher level license. Ah, some say, "we had to learn the code!" Even if you added 40 additional questions to the exam (26 for letters, 10 for numbers, and 4 for punctuation), the 68 questions in the pool would still be EASY compared to today's question pool. Please compare Addendum "C" with today's question pool: http://www.ncvec.org/page.php?id=369

Beginning in 1968, things began to change. With incentive licensing, the questions published by the FCC jumped from the then 34 to 50 and the license term went to 2 years. Beginning in 1976, the FCC stopped publishing sample questions altogether, making the entire question possibilities a guessing game. For instance, in 1975 the FCC was publishing 49 questions, which were reproduced in the "Radio Amateur's License Manual", which was published by the ARRL. By 1979, the ARRL Novice Q & A Book had 223 questions in it. The "comparatively easy attainment" set out in NPRM 9295 was **eliminated**.

In 1976, the distinctive callsign for novices spelled out in R&O 9295 was **eliminated**.

In 1978, the novice became a renewable, 5 year license (like all other amateur licenses at that time). The short term license spelled out in NPRM 9295 was **eliminated**.

By 1978, all of the original tenants set out in NPRM 9295 – a short term, non-renewable beginner's license of comparatively easy attainment – had been **eliminated**. And historical data shows that the drop off in youth licensing suffered greatly. It is no wonder that the novice license subsequently failed, and it is no wonder the novice license stopped attracting youth.

By 1992, the novice had a 35 question test, a question pool of more than 350 questions, and study material that resembled (and still resembles) school books. The "comparatively easy" component was no longer comparatively easy.

Amateur radio has shown two cycles of booming youth licensing – 1912 through the early 1920s, and 1951 through the late 1970s. Both of these were associated with a license of "comparatively easy attainment". If amateur radio has any chance of attracting young people to the hobby, a "short term, non-renewable beginner's license of comparatively easy attainment", or something similar to it, must be re-established. Otherwise, we will continue to turn youth off to the hobby and all that it has to offer.